SENSETHESYA

JULIA MATAR

IDES 3310

THE VERY FIRST BPM FOR THE VISUALLY IMPAIRED

FALL 2022

INTRODUCTION

PROBLEM FOUND: VISUALLY IMPAIRED INDIVIDUALS FIND IT VERY DIFFICULT TO MONITOR THEIR BLOOD PRESSURE ON THEIR OWN AND ALWAYS NEED ASSISTANCE

TARGET AUDIENCE: VISUALLY IMPAIRED AND LEGALLY BLIND INDIVIDUALS

AGE GROUP: INDIVIDUALS AGES 18-70

PROPOSED OUTCOME: FOR THE VISUALLY IMPAIRED AND LEGALLY BLIND TO BE ABLE TO USE AND MONITOR THEIR BLOOD
PRESSURE WITHOUT PHYSICAL ASSISTANCE NEEDED

EXPLORATION SKETCHES

MAGNETS

AT FIRST, I SKETCHED A RING DESIGN FOR EASIER USE AS,
HOWEVER, IT WILL BE CHALLENGING TO ADJUST AFTER EXPLORING THE SIZES. THEN I DUG A WRIST OPTION AND DESIGNED A PROTOTYPE AS A FIRST CONCEPT. HOWEVER, PROBLEMS AROSE, INCLUDING INACCURATE BLOOD PRESSURE. FOR THE MONITOR TO READ ACCURATE READINGS, IT NEEDS TO BE PLACED ON THE UPPER ARM WHERE THE BRONCHIAL ARTERY IS FACED UPWARDS. FOR THAT REASON, I DECIDED TO CREATE A SLEEK DESIGN WITH ONLY ONE FULL PRODUCT, WHICH IS THE GLOVE, AS THE FINAL CONCEPT THAT WILL EVENTUALLY BE THE BPM FOR THE
VISUALLY IMPAIRED IT

GESTURES POINTS

CLOSED

OPEN

SLEEVE

making it one device
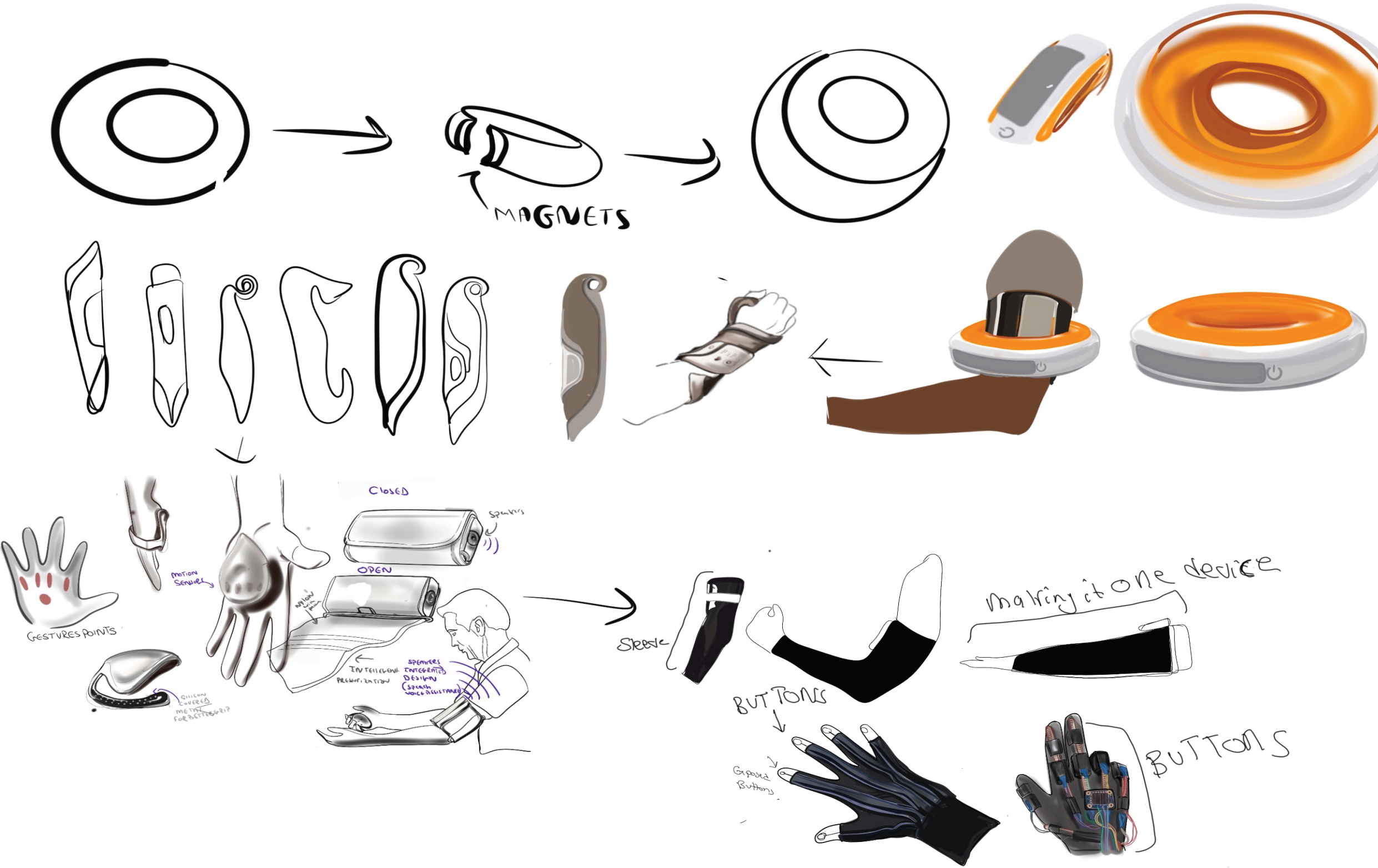
BUTTONS

BUTTONS

PROTOTYPE

AT FIRST I WANTED TO MAKE A PROTOTYPE OF A SLEEVE. HOWEVER IT WAS FIRST PLACED ON THE WRIST, WITH REMOTE CONTROL BUTTONS THAT NAVIGATE THROUGH THE DEVICE

1 FIRST YOU PLACE THE HOLE ON THE THUMB

2 THEN YOU WRAP IT AROUND YOUR ARM LIKE WRAPPING A BANDAGE

3 THEN YOU SECURE WITH A VELCRO

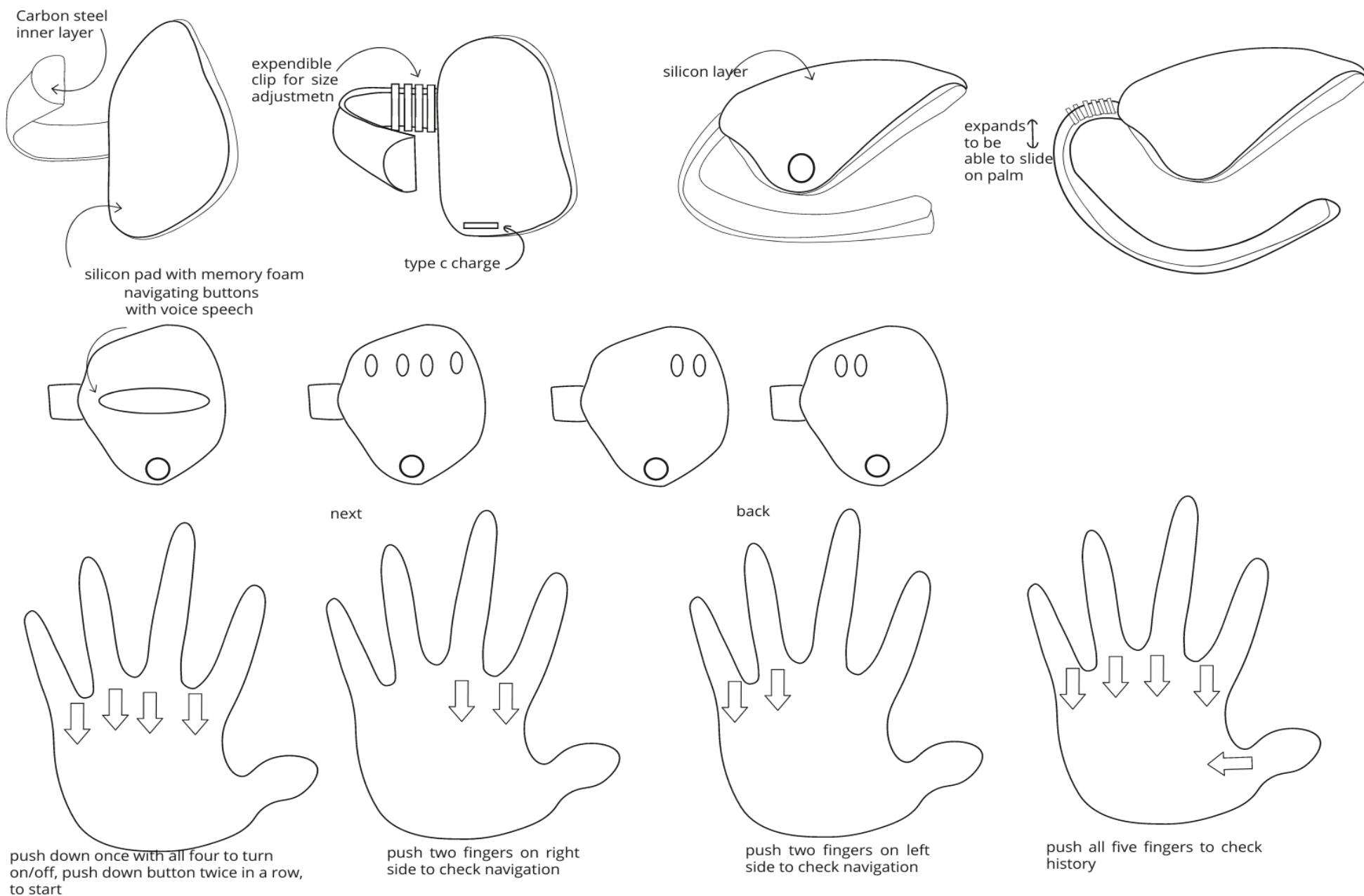**4** THEN YOU START THE DEVICE, WITH THE REMOTE THAT IS PLACED ON THE HAND

5. AFTER TESTING THE PROTOTYPE, I WAS ABLE TO MAKE CHANGES. 1 MAKE IT A FULL SLEEVE WHERE THE MONITOR IS PLACED ON THE UPPER ARM FOR ACCURACY, PLACE THE BUTTONS ON FINGERS FOR NAVIGATION
CONTROL, AND EMBEDS A SPEECH MOTION ACTIVATED
SYSTEM TO TALK TO THE USER UPON EACH STEP OF USING IT. MOREOVER,
HAVE A SIMPLE APP THAT HELPS TEACH THE BLIND USER HOW TO USE THE DEVICE

ONE MORE IDEATION

Carbon steel inner layer

expendible clip for size adjustmetn

silicon layer

expands to be able to slide on palm

silicon pad with memory foam navigating buttons with voice speech

type c charge

next

back

push down once with all four to turn on/off, push down button twice in a row, to start

push two fingers on right side to check navigation

push two fingers on left side to check navigation

push all five fingers to check history

I WANT TO EMPHASIZE ON USING A REMOTE CONTROL THAT IS ABLE TO NAVIGATE THROUGH THE MONITOR SYSTEM. SINCE MONITOR IS AI SPEECH MOVEMENT ACTIVATED, EVERY BUTTON DELEGATES A CERTAIN TASK.
HOWEVER, BEFORE GOING TO THE FINAL PHASE OF SKETCHING AND MODEL, I WAS STUCK IN A PHASE OF MAKING A MONITOR 2 PRODUCTS. A CUFF, AND AN ERGONOMIC REMOTE. PROBLEMS OCCURRED IN THIS DESIGN WHICH INCLUDES THE POSSIBILITY OF LOSING THE REMOTE AS WELL AS THE POSSIBILITY OF NOT BEING ABLE TO UNDERSTAND HOW IT WORKS AND IT WILL BE COMPLICATED TO EXPLAIN TO THEM HOW TO USE IT THROUGH THE APP.

USE-CYCLE

1

2

3

if pressed volume system, ring finger to lower volume

pinkie for louder volume

4

5

middle helps repeat the results search history

go back

press once for history twice for volume control
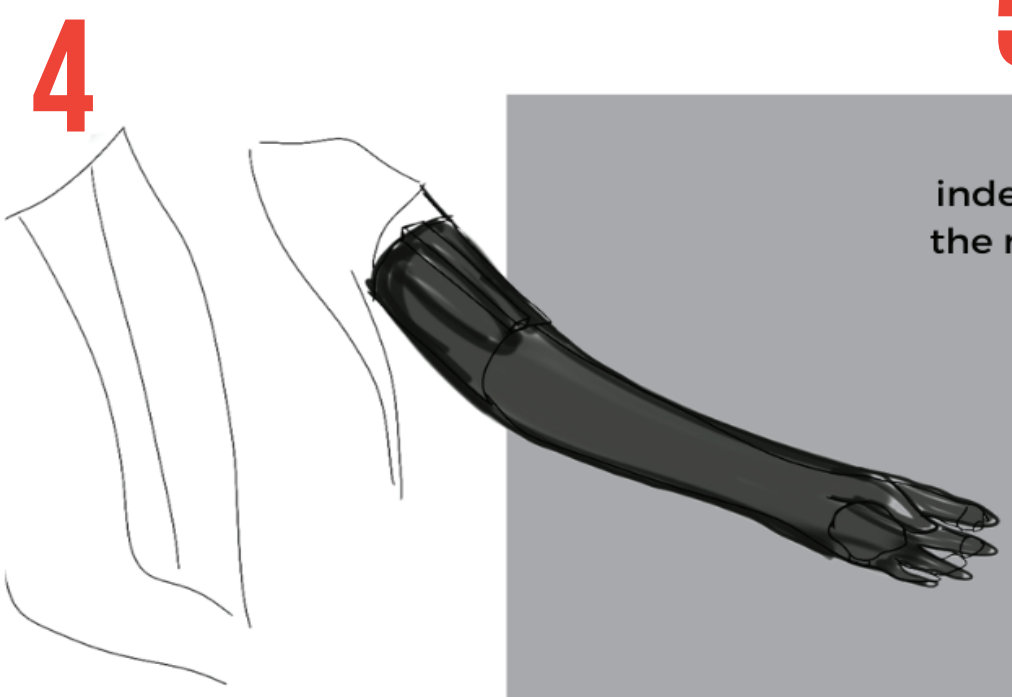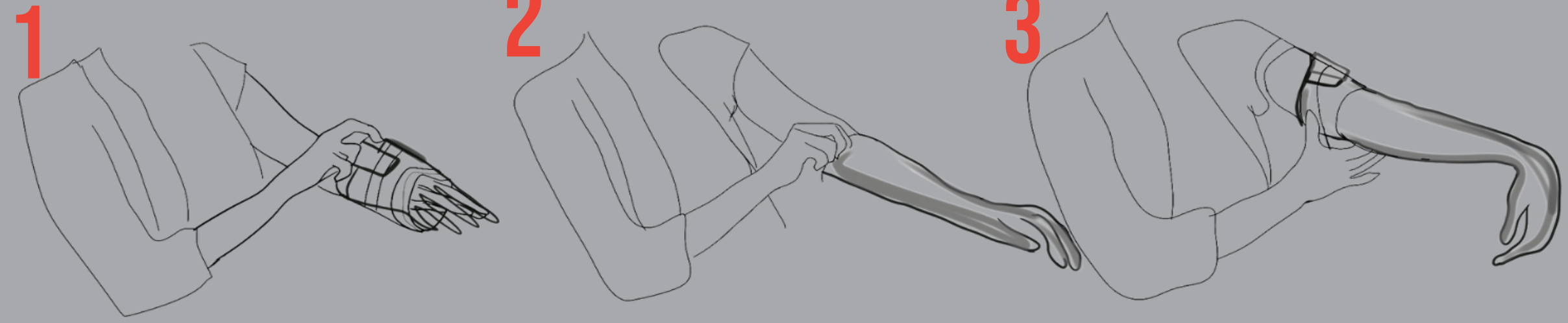
pinkie to go next

index starts the machine
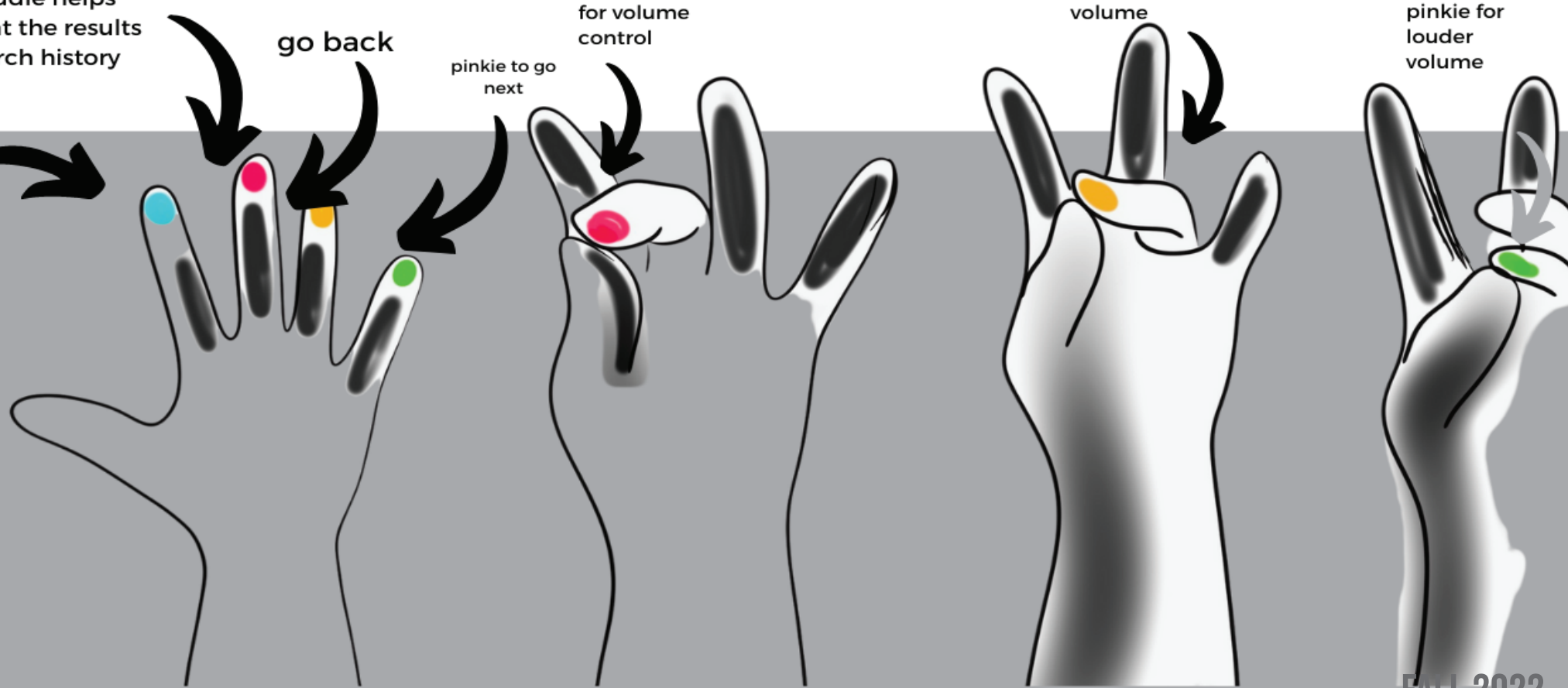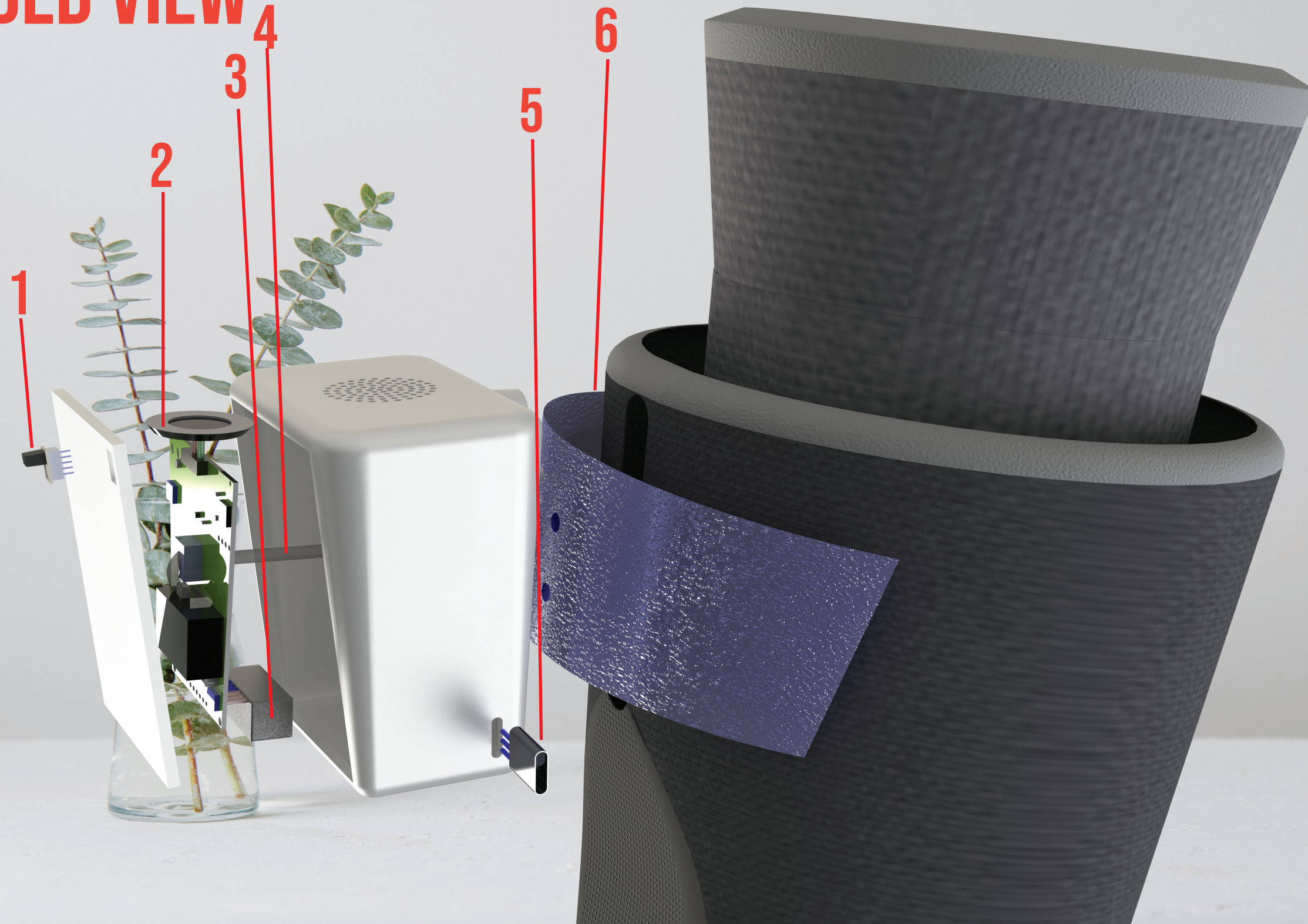
APP PROTOTYPE

USE CYCLE

FIRST YOU ENTER THEN YOU CONTROL THE VOLUME YOU WANT THE SPEAK ACTIVATION TO BE. AFTER THAT, YOU WATCH A TUTORIAL AND STEPS ON HOW TO USE IT THEN YOU HAVE THE OPTION TO SAVE YOUR HISTORY TO BE ABLE TO COMPARE AND MONITOR .

1

2

3

4

5

welcome

UNSEEN BPM

speech control

volume control

Playback Speed

10   25   50   75   100   200

Reverse Mode   Instant Replay   Draft

Your Blood Pressure

WATCH STEPS

CHOOSE FROM BELOW WHICH STEP YOU WANT TO WATCH

Continue

My Trends

June01 June02 June03 June04 June05

NR	DATE	TIME	SYST
1	01.06.2022	09:05	117
Event	02.06.2022	12:32	123
Event	03.06.2022	01:41	121
Event	04.06.2022	04:21	143
Event	05.06.2022	05:43	129
Event	06.06.2022	12:20	135
Event	07.06.2022	10:30	132

Your Blood Pressure

Cuff battery %

50%

STATUS

BL 6HR

talk now

VIEW CUFF BATTERY%

EXPLODED VIEW

1
2
3
4
5
6

1. SWITCH
2. SPEAKER SYSTEM WITH MOTHER BOARD
3. BATTERY
4. AIR TUBE
5. TYPE C CHARGE OUTLET
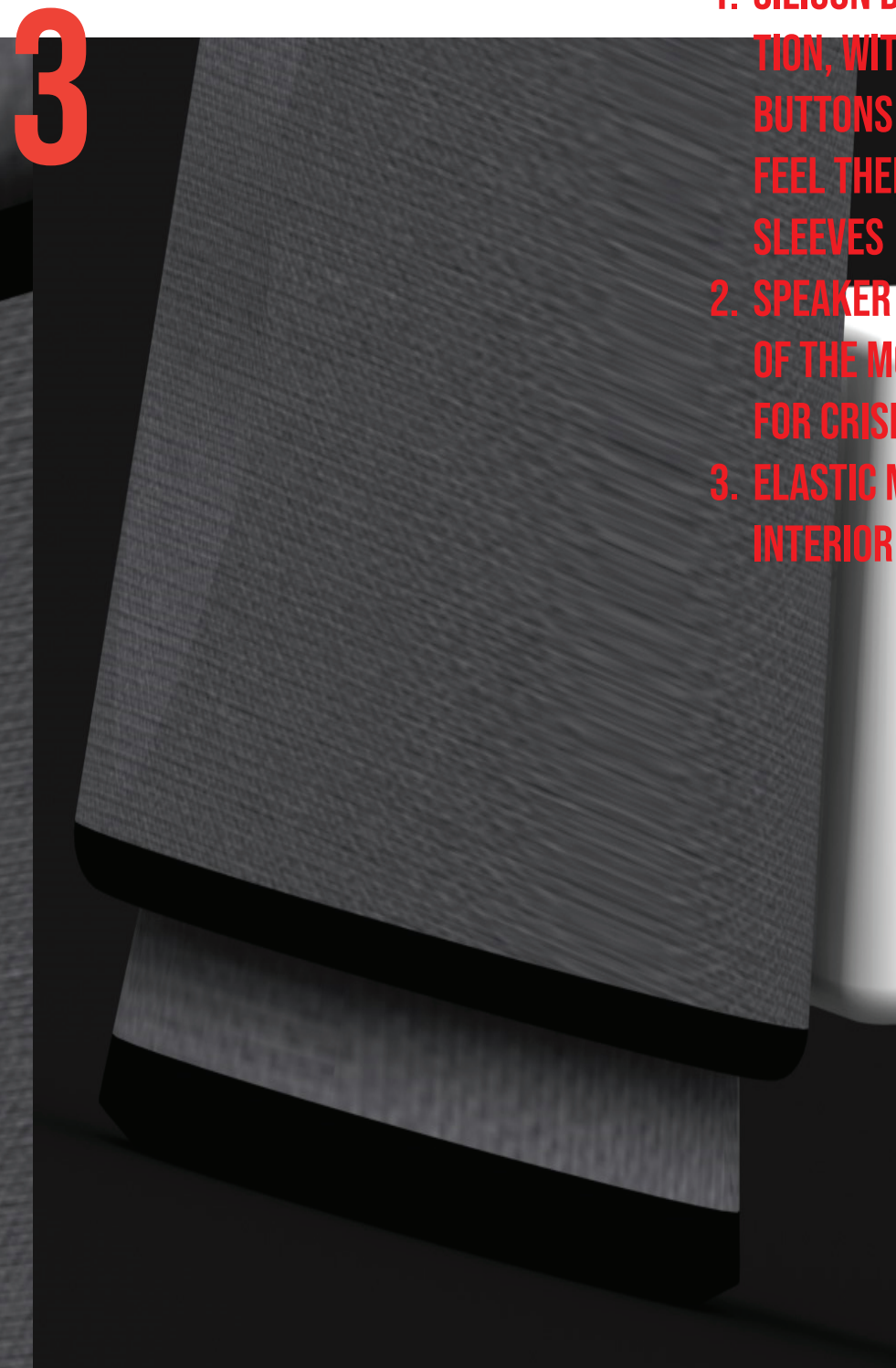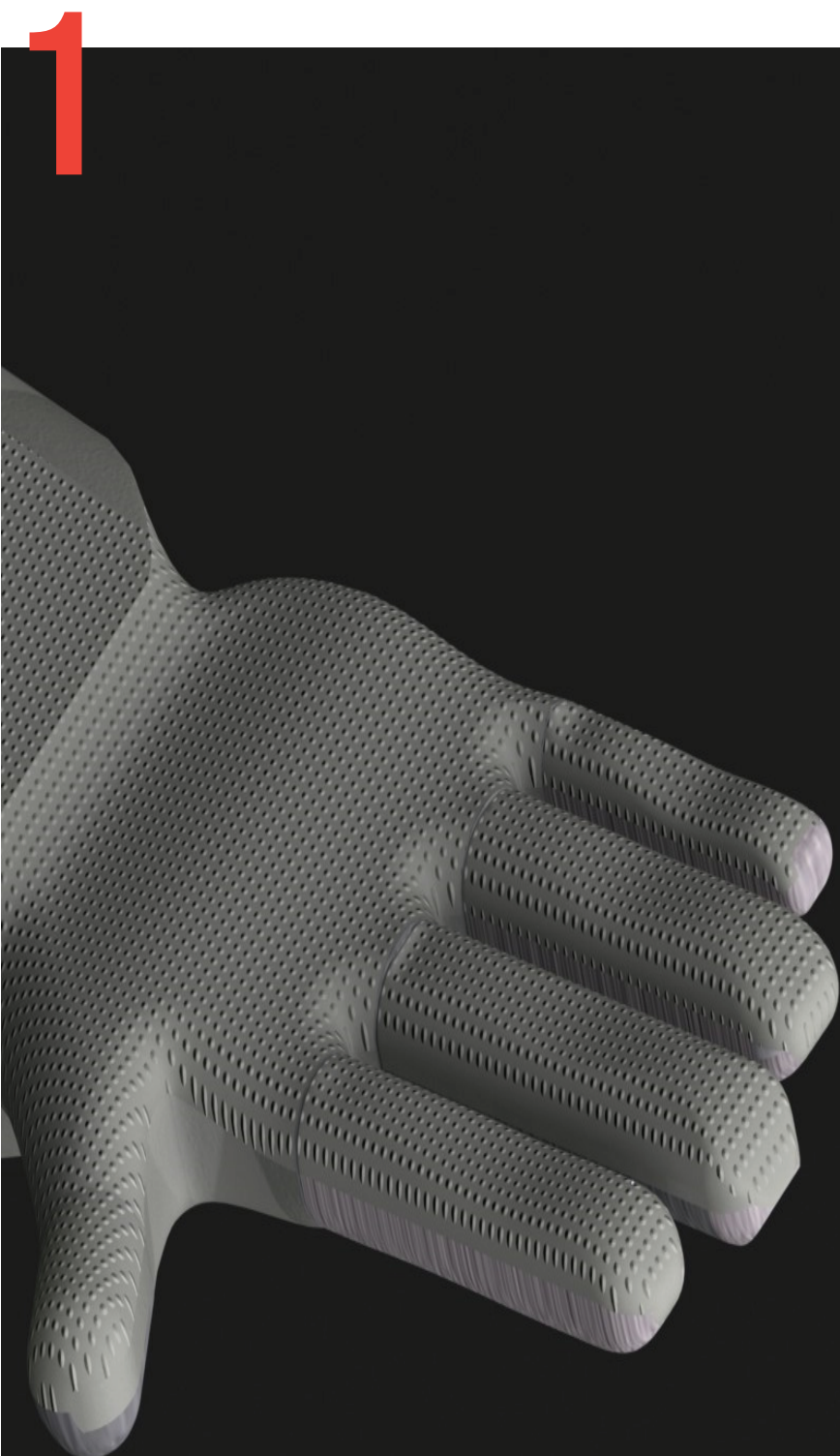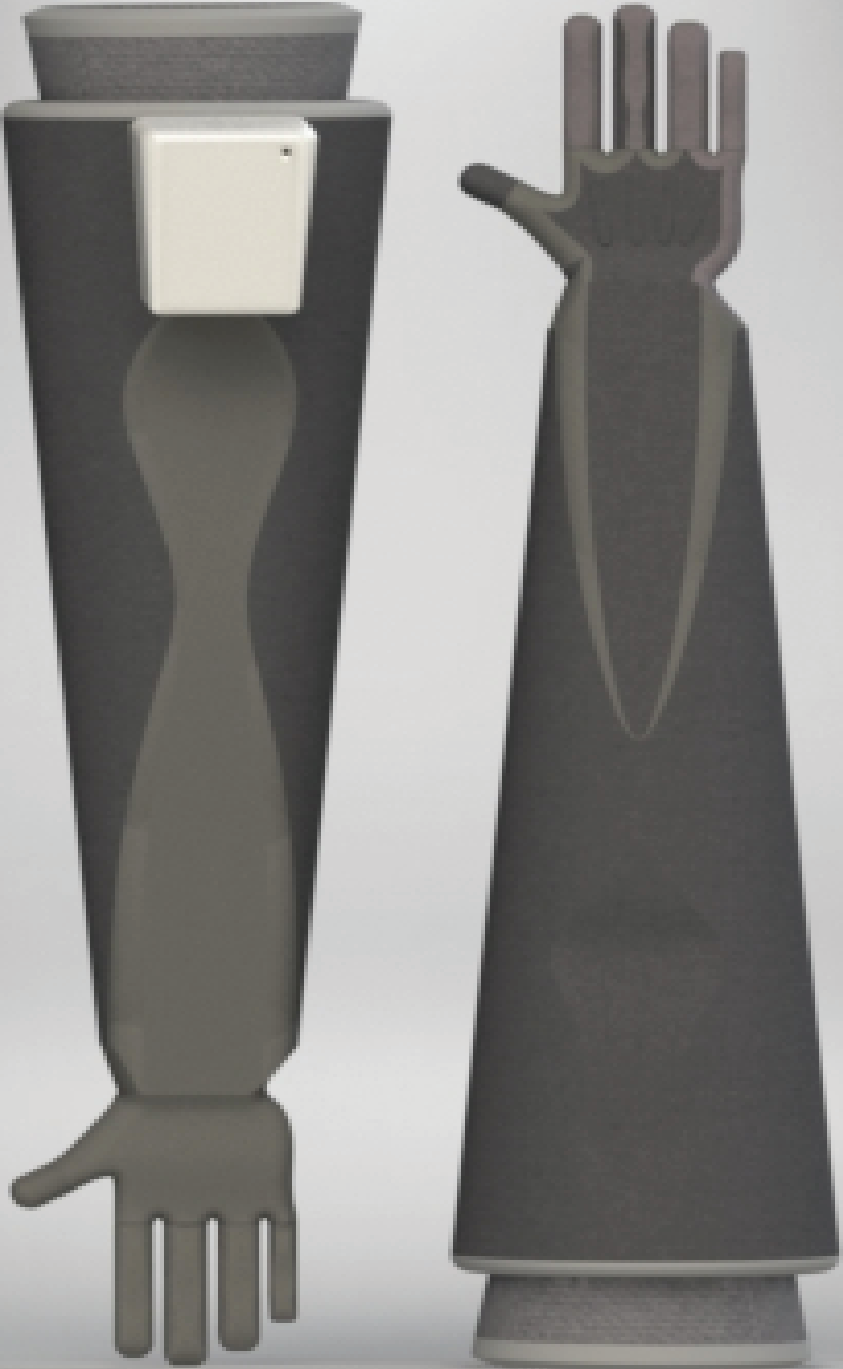6. INFLATED CUFF

EXPLODED VIEW

EXPLODED VIEW

1

2

3

4
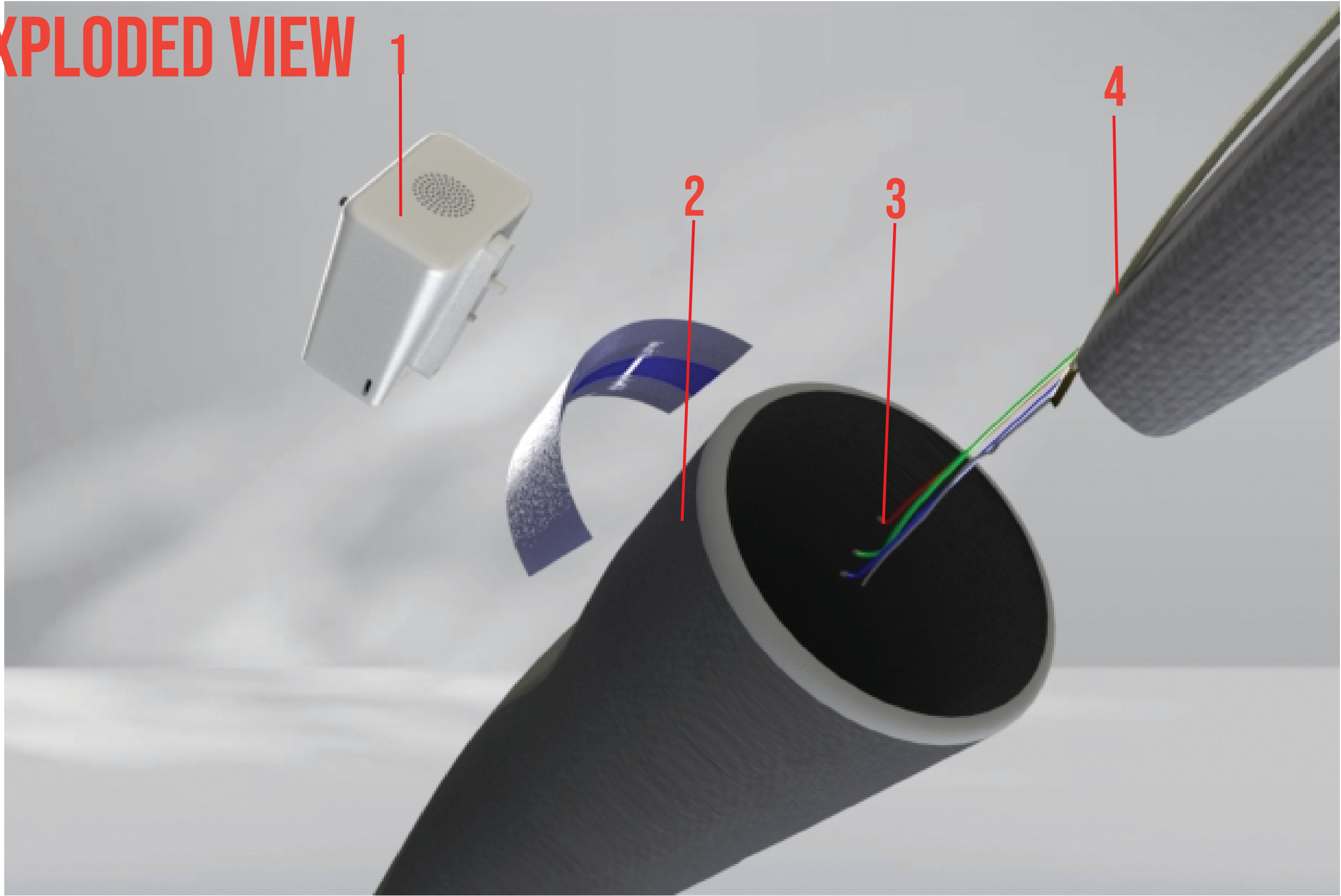
1. MONITOR/PRESSURIZING MACHINE
2. SLEEVE EXTERIOR SHELL
3. REMOTE BUTTONS WITH WIRES
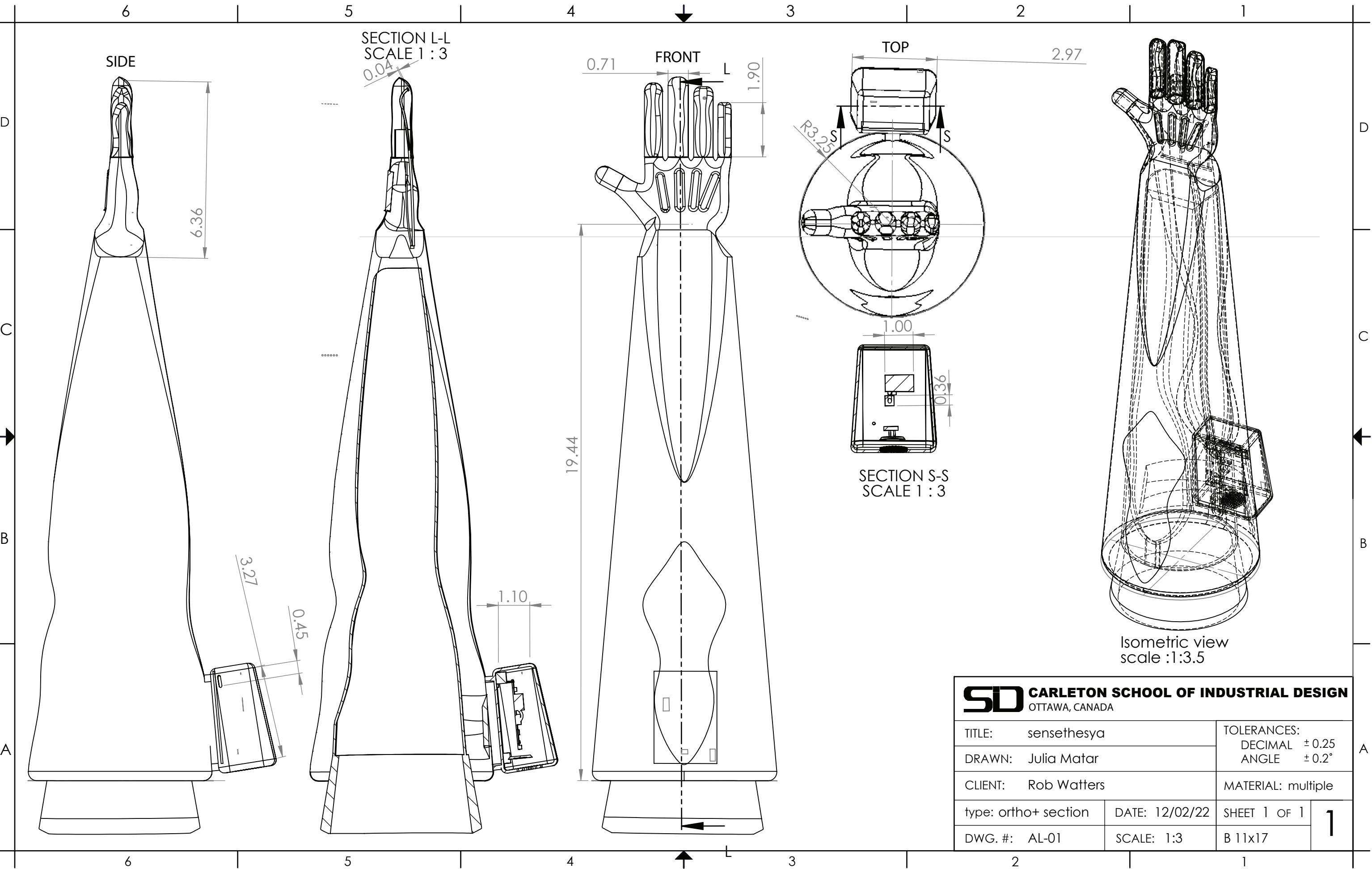4. INNER PROTECTIVE SLEEVE (PRO-
   TECTS WIRES AND PERSON USING

FALL 2022

FEATURES

1

2

3

1. SILICON DIPPED PALM FOR RECOGNI-
TION, WITH SMALLBUMPS. SEAMLESS
BUTTONS , WHERE YOU CAN ONLY
FEEL THEM ONCE YOU WEAR THE
SLEEVES
2. SPEAKER PLACED ON THE UPPER SIDE
OF THE MONITOR CLOSER TO THE EAR
FOR CRISP HEARING QUALITY
3. ELASTIC MADE OF SILICON FROM THE
INTERIOR LINING FOR BETTER GRIP

FINAL RENDER

JULIA MATAR
IDES3310B

SIDE

6.36

3.27

0.45

SECTION L-L
SCALE 1 : 3

0.04

1.10

FRONT

0.71

L

1.90

19.44

TOP

2.97

R3.25

S

S

1.00

0.36

SECTION S-S
SCALE 1 : 3

Isometric view
scale :1:3.5

SD **CARLETON SCHOOL OF INDUSTRIAL DESIGN**
OTTAWA, CANADA

TITLE:	sensethesya		TOLERANCES: DECIMAL ± 0.25 ANGLE ± 0.2°	
DRAWN:	Julia Matar			
CLIENT:	Rob Watters		MATERIAL: multiple	
type: ortho+ section		DATE: 12/02/22	SHEET 1 OF 1	1
DWG. #: AL-01		SCALE: 1:3	B 11x17	
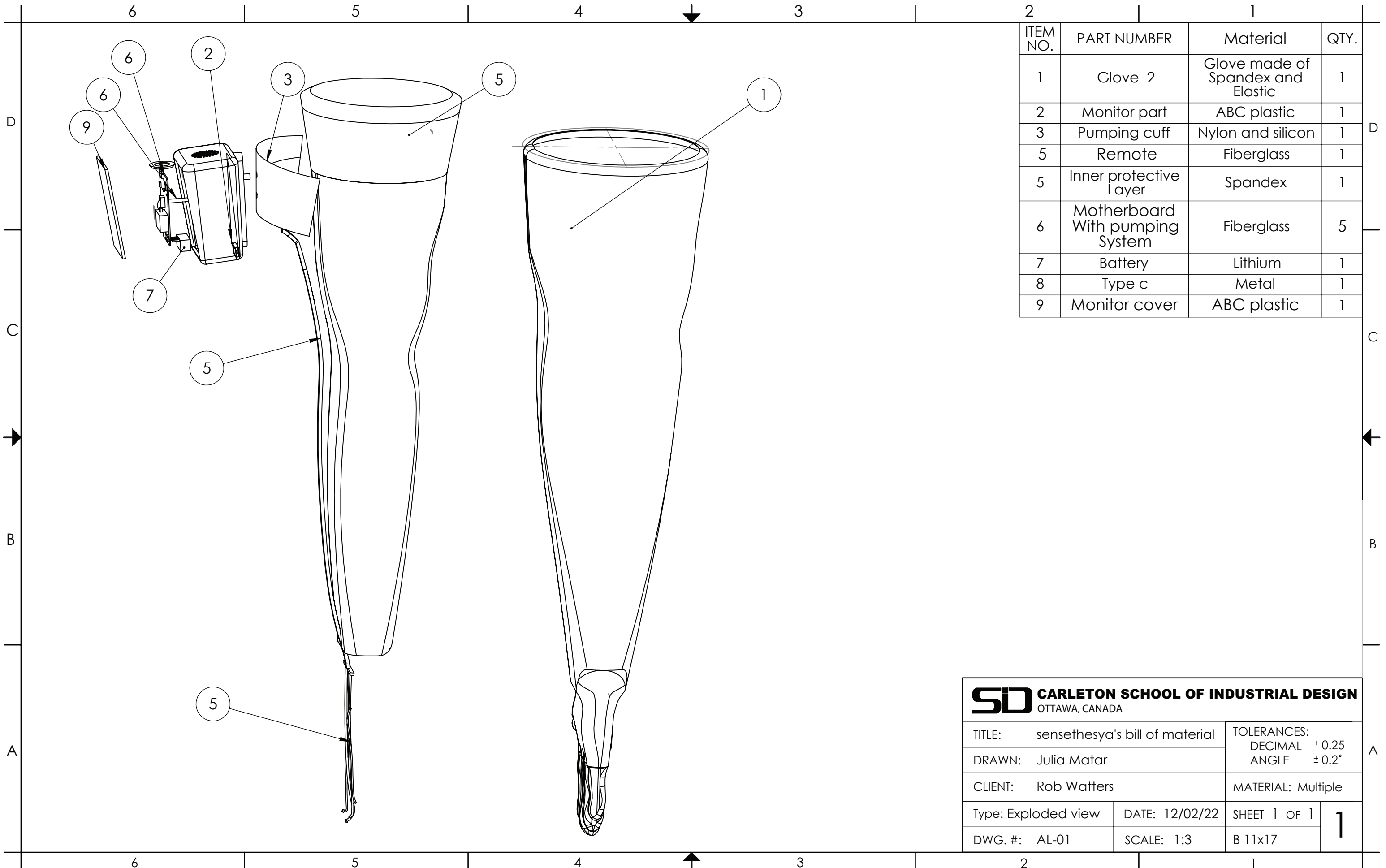
ITEM NO.	PART NUMBER	Material	QTY.
1	Glove 2	Glove made of Spandex and Elastic	1
2	Monitor part	ABC plastic	1
3	Pumping cuff	Nylon and silicon	1
5	Remote	Fiberglass	1
5	Inner protective Layer	Spandex	1
6	Motherboard With pumping System	Fiberglass	5
7	Battery	Lithium	1
8	Type c	Metal	1
9	Monitor cover	ABC plastic	1

SD CARLETON SCHOOL OF INDUSTRIAL DESIGN
OTTAWA, CANADA

TITLE:	sensethesya's bill of material		TOLERANCES: DECIMAL ± 0.25 ANGLE ± 0.2°
DRAWN:	Julia Matar		
CLIENT:	Rob Watters		MATERIAL: Multiple
Type: Exploded view	DATE: 12/02/22	SHEET 1 OF 1	1
DWG. #: AL-01	SCALE: 1:3	B 11x17	